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CASES OF CEREBRO-SPINAL MENINGITIS IN POST HOSPITAL,  
GALLOP'S ISLAND, BOSTON HARBOR, FROM SEPTEMBER,  
1864, TO MAY, 1865.

[Reported to the Boston Society for Medical Improvement, June 12th, 1865, and communicated for the  
Boston Medical and Surgical Journal.]

BY CALVIN G. PAGE, M.D.

CASE I.—L. B. L., recruit, from Pittsfield, Mass., 18 years old, light complexion, blue eyes, and of bilious, sanguine temperament. Was admitted to hospital Sept. 14th, having been unwell for two days previous to reporting at sick call. When first seen, patient was complaining of severe headache, attended with extreme weakness; had been vomiting bilious matter, and had had several evacuations of thick mucus of the consistence of gruel; no pain in the bowels; tongue was badly coated and flabby; pulse at wrist barely perceptible; patient stupid, but not delirious. I ordered hot baths, during which purple spots of irregular shapes appeared on the abdomen, chest and thighs, increasing in size and color very rapidly; extremities cold and shrivelled. By hot applications externally, and stimulants internally, reaction commenced in three hours from the bath, and with it delirium, exhibiting itself by continued incoherent talking as long as the strength lasted, ending in a whisper at the last breath.

Sept. 15th.—Noticed rigidity of the muscles of the neck, with extreme tenderness of spine in lumbar region, and tendency to roll from one side to the other; very restless, constantly talking, and momentarily conscious when spoken to. I noticed this day an eruption about the mouth and nose of an erysipelatous nature, the purple spots rather tending to recede or dry, with a circumscribed base, as if about to slough, which did not occur, but they gradually disappeared by the fifth day from their appearance. There was no marked change in patient from this time to his death, which occurred on the 19th. Opisthotonos increased to the last, yielding to no treatment. Allowing the disease to have commenced on the 12th,

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two days previous to his entry to the hospital, the length of the attack was seven days.

CASE II.—E. D., recruit, from South Reading, Mass., 15 years old, dark complexion, slight in person, and not a healthy-looking boy. Patient was admitted January 29th, complaining of excessive pain in the head, of cold running down the back, and sickness at stomach, vomiting thick bilious matter. Cold applications were made to the head, and blisters to the neck and spine.

Jan. 30th.—Complains of pain "all over"; very sore to the touch, and no diminution of pain in head; is inclined to coma. Face to-day is flushed, and pulse 120, slightly tremulous. Blisters drew well; also had a free evacuation from the bowels, but without result. Symptoms rather tending to congestion, which proved to be the case on the following day, as patient died comatose, and with stertor in breathing towards the close. There was no decided opisthotonos in this case, nor petechiæ, but from the extreme sensitiveness of touch and extent of pain in the head, I could class it under no other head.

CASE III.—B. F. W., recruit, from Boston, 15 years old, slight in person, and not of robust constitution. Was admitted to hospital Jan. 9th, 1865, complaining of sickness at stomach, severe pain in the head and aching in every joint. The whole surface had a peculiar mottled appearance, being much like a faint eruption of measles, the spots more generally diffused, however, than in rubeola; having measles in hospital at the time, I concluded to put him in the measles ward. Patient was delirious at times during the day, and very restless; pulse 130.

Jan. 10th.—Could perceive no eruption; pulse still 130, and irregular. Had him put in the main ward. No abatement of pain; still delirious and very restless.

11th.—Patient seems brighter, but no better; the pulse increasing and tremulous; face livid; head very hot, with decided symptoms of congestion; no opisthotonos; pupils dilated; breathing labored. Patient died in the early part of the afternoon. Like the preceding case, I could class it under no other head, although the symptoms were indistinct.

CASE IV.—O. W., recruit, from near New Bedford, was 19 years old, a stout, robust, healthy person. The only defect found at time of examination was a dry, hard, callous-like ulcer on the bottom of the heel, which, from his own account, discharged occasionally a watery fluid, causing no pain, nor in any way interfering with his daily avocation as a teamster. January 28th, patient came to sick call, feeling slight headache and tired. I ordered cinchonated whiskey, and excused him from duty.

Jan. 29th.—Reported this morning as feeling much the same; had vomited during the night from overloading the stomach with sweetcake and pie. In the afternoon of the same day, the sergeant

came to the hospital, stating that the patient was much worse and was turning purple. I ordered him brought to the hospital immediately. On his arrival, I found the whole surface covered with petechiæ; patient insensible, and evidently too far gone to resuscitate. No morbid symptoms in this case until within thirty minutes of his death.

CASE V.—L. C., old soldier, from Plymouth, Ct., 30 years old, was sent to this post for transportation, convalescent from some disease, I know not what. I was called to see patient in barracks, as having a fit. Found no paroxysm, but a constant tumbling from right to left side, he unable to speak and seemingly unconscious. I ordered him to hospital, and administered chloroform, with the usual effect while under its influence. Patient vomited bile, with no change of symptoms, and was so restless as to require strapping to the bed. Symptoms yielded slightly under large doses of opium, producing, however, no real relief. He died the day following, of congestion. No opisthotonos or petechiæ, but emprosthotonos, with decided cerebral trouble of some kind.

CASE VI.—A. A. M., recruit, from Cambridgeport, Ms., 19 years old, stout and healthy, of sandy complexion, a teamster. Came to sick call, feeling unfit for duty, but not really sick. Gave no medicine. In the afternoon, came to hospital feeling sick at stomach, with slight drowsiness of head. Gave an emetic, which had seemingly a favorable effect. This was at 4, P.M. At 6 I examined patient and found him, to use his own words, feeling every way comfortable, but cold. I could discover no pulse at the wrist, and extremities were stone cold. I changed his bed to one beside the stove, to which he walked with perfect ease. Could discover no petechiæ, although the steward noticed them when he first came in. No opisthotonos, but decided symptoms of congestion. He died at 9 that evening, having the stertorous breathing similar to the preceding cases.

CASE VII.—J. E. S., old soldier, from Concord, N. H., 22 years old, florid complexion, of nervous sanguineous temperament; subject to epilepsy. Patient was brought here from the boat, having been taken while *en route* for this post. Symptoms were, excessive pain in head and limbs, and prostration; no vomiting or petechiæ. I applied leeches to the temples, and gave oleum ricini,  $\frac{3}{4}$  ss., ol. croton. tigii, gtt. iij. This was February 15th. The day following, patient complained less of pain in head, but felt stiffness in cords of neck. Made use of stimulating liniment to neck, and gave pil. hydrag., gr. vii., at bedtime.

17th.—Is feeling better, but very weak. Ordered stimulating diet, and continued the liniment. On the 20th, patient was able to sit up; still very weak.

21st.—Patient complained more of stiffness of neck and joints of lower extremities; is feverish and wandering, inclining to whistle rather than to talk. Could perceive no swelling of joints, and but

slight contraction of muscles; tongue coated and not easily managed. Patient remained much the same for some days. On the 26th, noticed a difficulty in swallowing and a hesitation in answering questions; head more inclined to left side, evincing great pain when moved; countenance troubled, and had a peculiar stare when spoken to; evacuations from bowels and bladder involuntary, although regular and natural. From this date patient gradually sank, with no change in character of disease, and died March 17th, 1865, four weeks and two days from first attack. Could discover no petechiæ in this case, but decided opisthotonos of the entire left side, with complete prostration, was present from Feb. 21st. Patient had gonorrhœa when admitted, which continued to time of his death; also slight swelling of testicle in the early part of the attack.

CASE VIII.—O. B., old soldier, 20 years old, stout, and to all appearance healthy. Was admitted to hospital February 8th, 1865. Complained of excessive pain in head, neck and side, to which blisters were applied, and pil. hydrarg., gr. vii., was given at night.

9th.—Head and neck still very painful, patient shrinking from the slightest motion of either. Ordered liniment to neck; also, quinia, grs. v., Dover's powder, grs. vii., every four hours.

10th.—The same. Continued treatment. Tongue thickly coated, but moist.

11th.—Ordered pil. hydrarg., grs. vii., at night. Liniment. Patient complains less, but still shrinks from pain; is at times delirious. I used beef-tea and egg punch freely.

16th.—Patient allows himself to be moved, although very sore and weak. As in the last case, the head inclines to the left shoulder, and symptoms every way resemble that case. Patient is of much stronger constitution, and was free from disease of any kind. Patient was discharged from hospital March 2d, convalescent.

CASE IX.—J. P., old soldier, from Providence, R. I., 17 years old, rather small and immature, but apparently healthy. Was admitted to hospital February 10th, 1865, at the time comparatively helpless, with involuntary discharges from bowels and vomiting of bilious matter. Petechiæ were seen on the abdomen, with muscular contractions from head to heels. Delirious most of the time. Blisters were applied to neck and spine, hot stones to feet, and quinia sulph., grs. vij., capsicum, grs. ij., whiskey, 3 ij., every three hours during the day. Dover's powder, gr. vij., morph. sulph., gr. ½, at bedtime.

11th.—Muscles of neck very tense, and head so drawn back as to obstruct the œsophagus. This continued for three days, during which time injections of beef-tea and wine, each one pint, were given every three hours, nights excepted. On the fifth day from the attack the muscles of the neck relaxed a trifle, and patient could with great effort swallow a little; in doing which, copious discharges of dark, tenacious mucus were produced. From this date patient continued to improve on stimulating diet alone.



March 1st.—Noticed swelling of parotid gland, attended with pain and loss of appetite, tongue coated, and feverish symptoms accompanying. I gave potass. chl. sol., freely painting the neck with tinct. iodine at night. A full month was embraced in subduing this attack, patient being able to walk by means of crutches.

May 1st.—Acute rheumatism set in, attended with swelling of joints and difficulty of breathing, probably the effects of sudden cold. No fever, no disturbance of bowels, no coating of the tongue, and yet patient could not be moved or touched without screaming. I gave sol. potass. iodidi during the day, and one fourth of a grain of morphia at bedtime. Generous diet. At present time patient is able to sit up and stand, but not to walk. His chances seem good for recovery. I should have stated that deafness attended the first attack.

CASE X.—J. B. F., recruit, from Berkshire County, Mass., 18 years old, not a healthy person. Admitted February 18th, 1865, complaining of chills, weakness and slight headache. Gave oleum ricini, ʒ ss. Afternoon.—Still complains of feeling cold. Gave quinia, gr. vij., capsicum, gr. ij., whiskey, ʒ ij. and ordered a hot bath, which brought out spots on the face and body. Pulse barely perceptible; extremities very cold, and countenance anxious; mind perfectly clear. In all cases thus far the spots have been angular, of no particular shape, and generally from the size of a small bean to that of a chestnut. The prominent symptom in this case was the sensation of cold, as expressed by the patient's constantly stepping out of bed to go to the stove, which he did thirty minutes before he died, death taking place twelve hours from the attack. No opisthotonos, or pain, except in head, and no amount of heat made any impression upon the chilliness. The dilatation of the pupils was very great.

CASE XI.—C. I., recruit, from New Ipswich, N. H., 18 years old, robust, healthy, and every way sound. Was admitted February 23d, complaining of headache and complete blindness. Tongue coated, and stinging pains in arms and legs. Gave oleum ricini, ʒ ss., ol. croton. tigllii, gtt. iij. Noticed spots on arms, legs and face; also noticed redness of the eyes. In one hour's time the spots, which were more circular than angular, increased from the size of beans to large patches, running together, especially on the forearms, growing very dark and sore to the touch. Pulse feeble; extremities cold, but patient expressed himself as feeling comfortable, if let alone.

24th.—Spots still very dark and swollen, showing a disposition to slough, having every appearance of sores from caustic potash.

25th.—Line of demarkation very distinct, especially on the arms and wrist. On the 26th, skin sloughed out, leaving the whole inner surface of forearm down to fascia raw and excessively painful, suppurating freely. Spots on legs formed thick crusts, discharging matter from the under surface continually. From the commence-

ment of the sloughing, patient improved slowly until near the first of April, when sore mouth and tongue set in, attended by profuse expectoration, similar to ptyalism. This subsided in a fortnight's time, and patient improved rapidly in every respect, excepting the eyesight, which only allowed him to discern objects independently of form.

May 11th.—Patient received his discharge from the U. S. service, which prevented any further observation of the case. There was no opisthotonos in this case, or cerebral disturbance. Secretions and evacuations every way natural and healthy.

CASE XII.—A. S. P., recruit, from Gardiner, Me., 21 years old, very robust and healthy. Was brought to hospital early in the morning of March 20th, insensible, helpless and very restless; head inclined backwards, but muscles not rigid; tongue badly coated and brown; face very red, and pulse high.

22d.—Eruption about the face, more particularly the mouth and nose; could discover no spots, nor did the patient seem sensible to pain. Patient would pass his water involuntarily, and most of the time was delirious. Symptoms continued bad from the commencement to the time of his death, April 8th, 1865.

CASE XIII.—Dr. G. A. P., recruit, from Jaffrey, N. H., 40 years old, a practising physician, came to this post from Concord, N. H., having attended a case of spotted fever previous to coming here. Excessive pain in the head and limbs; prostration; purple spots on the abdomen, making their appearance on the third day from the first sensation of illness. Patient was admitted to hospital April 11th. Neck stiff, very sore to the touch and inclined to left side. No change in symptoms until April 13th, when the face, directly in front of right ear, commenced to swell, and by night had increased up and down, from the temple to the clavicle, embracing the parotid gland, very hard and extensive, and not seemingly painful.

15th.—Pus commenced discharging from the ear, very freely. No fluctuation in the tumor.

17th.—An incision was made at the base of the tumor, also another on the day following, followed by free discharge. During the first two weeks patient seemed perfectly indifferent, would answer indirectly, with momentary consciousness. Patient continued to improve from the commencement of the discharge from the abscess. Most of the time had no control of rectum or bladder.

May 7th.—Was conveyed home, convalescent.

CASE XIV.—J. R., recruit, from Boston, Mass., 38 years old, of delicate constitution, sailmaker by trade. Was admitted March 22d, with pains in whole body; felt so sore as not to bear his weight; cramped all over; inclined to be stupid. No spots perceptible, nor were there any other prominent symptoms. His breathing was stertorous previous to his death, which occurred March 30th, eight days from attack.

CASE XV.—A. W. F., recruit, from Bangor, Me., musician, 19 years old, stout and healthy. Symptoms as in previous cases. Was admitted April 3d. Pulse very high; neck stiff, and although sensible, could not speak; countenance troubled, and patient very restless. Sodæ bisulph. was given freely, and continued, with no perceptible effect.

4th.—Pulse 100; face flushed, and paralysis of left side.

5th.—Stertorous breathing, with livid countenance. Patient died in the afternoon. No spots or opisthotonos.

CASE XVI.—W. L., recruit, from Hopkinton, Mass., farmer, 19 years old, was at the time of attack in hospital for measles. Admitted March 6th.

10th, 4, P. M.—Spots came out all over the body; no headache; mind clear. In two hours the whole surface was nearly black, in which state patient died, complaining only of difficulty in breathing. Patient occupied the bed previously used by Case VIII. Whether the disease had any other than a peculiar turn and terminus of measles I cannot say; it certainly differed from anything I ever witnessed. The spots were isolated, and wholly independent of the rubeola.

CASE XVII.—W. M., recruit, from Roxbury, Mass., 19 years old, healthy. Was admitted March 7th. Died March 10th, having symptoms like the previous cases. Petechiæ on abdomen. No opisthotonos.

Other cases of a mild character have occurred, but hardly deserving mention. I would remark that in all cases, mild or exaggerated, erysipelatous eruptions have occurred on the third or fourth day from attack; and in all cases where the patient was conscious, soreness of the limbs and feet has prevailed, and in most cases involuntary discharges from the rectum and bladder. In but two instances could anything like contagion be traced.

## ANALYSIS OF CASES.

	<i>Admitted.</i>	<i>Died.</i>	
1. L. B. L.	Sept. 14th, 1864.	Sept. 19th.	
2. C. B.	Jan. 25th, 1865.	Jan. 27th.	
3. E. D.	" 29th, "	" 31st.	
4. O. W.	" " "	" 29th.	
5. L. C.	Feb. 6th "	Feb. 7th.	
6. O. B.	" 8th "	" "	Recovered.
7. B. F. W.	" 9th "	" 11th.	
8. J. P.	" 10th "	" "	Recovered.
9. A. A. M.	" " "	" 10th.	
10. E. F.	" 14th "	" 15th.	
11. J. E. S.	" 15th "	March 17th.	
12. J. B. F.	" 18th "	Feb. 18th.	
13. W. L.	March 6th "	March 10th.	
14. W. M.	" 7th "	" "	
15. A. S. P.	" 20th "	April 8th.	
16. J. R.	" 22d "	March 30th.	
17. J. F. P.	" 29th "	April 16th.	
18. A. W. F.	April 3d "	" 5th.	
19. G. A. P.	" 11th "		Recovered.

## NITROUS OXIDE—IS IT SAFE FOR INHALING?

[Communicated for the Boston Medical and Surgical Journal.]

THIS is a question often asked by the patient about to inhale it for anæsthetic or sanitary purposes.

To this query all varieties of answers are returned by all grades of intelligence. One "professor," who claims a wide scope in the field of industrial chemistry, basing his opinions on the rude experiments of Davy and the older chemists, pronounces it a dangerous inhalant, of which the public should beware. Another "professor," equally assumptive, clamors for its indiscriminate use in hygiene and anæsthesia; and so opinions differ. The question is one we care not to discuss, farther than may be done in the simple statement of some of the experiments made by ourselves and one or two friends during the past year.

Every agent employed in medicine has its right and its wrong uses; and no drug wrongly prepared or ignorantly administered should be made responsible for its failure to do that claimed for it by the profession.

Few agents employed in surgery and hygiene are more widely known and less understood than nitrous oxide. The fact that it has been taken possession of to a great extent by charlatans in science, has caused the more intelligent to neglect the study of its nature and adaptation to the relief of pain and disease.

When properly prepared and properly administered, we cannot but regard it among the safest of inhalants. That prepared by ourselves we have inhaled to entire anæsthesia *one hundred and ten* times during the past ten months, with a very perceptible improvement in our general health, while we have given this gas to others, for sanitary and anæsthetic objects, some three hundred times in the same period; and in no single instance do we remember meeting with the least unfavorable result. In certain dental establishments in this city it is almost, if not entirely, used for anæsthesia. The proprietor of one of these recently stated to us that it had been employed by him for anæsthesia in nearly eight thousand cases, with not a serious result.

But by some it is urged that while perhaps safe for brief anæsthesia, this cannot be predicated of the gas in protracted operations. In at least three instances, we have known entire anæsthesia maintained during surgical operations lasting from four to seven minutes, with the most happy effects on awakening. Others assure us of success with this in cases of anæsthesia much more protracted. From what we have heard and witnessed ourselves, we have reason to believe that entire insensibility to pain may be safely maintained for a longer period than with ether or chloroform. This may be inferred from the vitalizing character of nitrous oxide, which maintains the temperature and pulse by oxidizing the blood, while it is well known

that the effects of ether, or more particularly chloroform, are the reverse of this.

In the preparation of nitrous oxide and its indiscriminate use by ignorant and unskilled practitioners, is it any cause for wonder that cases of injury should be occasionally reported? Considering its extensive use, is it not rather a wonder that so few such should occur?

Until within a short period, insensibility was produced, in most of the dentists' offices where the gas was used, by inhaling this from small rubber bags and allowing the breath to return and be re-inhaled—the quantity of the nitrous oxide being in many cases wholly insufficient to counteract the poisonous carbonic acid from the lungs. Thus insensibility was produced by the aid of asphyxia—the lips of the patient often assuming a purple hue, while the head seemed distended and filled with fearful sounds, followed by severe headache upon the patient's returning to consciousness. Such a barbarous application of this agent has only served to excite ridicule from certain caustic pens, and prejudice the community against the gas rather than against such a disgusting application. Indeed, even professors in some of our colleges and compilers of our text books on chemistry have done not a little to mislead in this matter. In four school chemistries now before us, this gas is represented as being prepared by washing in a single bottle holding less than one quart of water, and in two of these books the inhalation is directed to be made from a *bladder of about the capacity of the patient's head!* With such guides no wonder that itinerant professors have such success, and that in some cases dentists find it "injurious" to their patients.

To be safe, nitrous oxide, like chloroform, should be properly made and administered. In making this gas, we employ an automatic regulator of the heat, confining the nitrate of ammonia in the flask to a temperature scarcely above 400°. The results of decomposition at this point are quite different from those where the heat of the salt is fluctuating, rising at times to 500°, and even to 600°, as is common by the ordinary process of heating. Thus prepared, the gas in its passage to the gas-holder is forced through five one-and-a-half-gallon glass washers, filled with an alkaline solution and pure water; each washer being provided with perforated glass tubes for finely dividing and washing the gas. Thus five distinct plunges are made through as many feet of water, when the gas is passed into a zinc receiver, where it is confined over water. This whole process is simple, safe and economical.

For inhaling we employ an improved valved apparatus, drawing the gas directly from the zinc holder and exhaling into the open air. With this arrangement perfect anæsthesia in its most agreeable form may be produced, while even the most sensitive lungs suffer not the least inconvenience.

The efficiency of nitrous oxide depends on the degree of its absorption by the blood which meets it in the lungs; and this of course on the amount inhaled and the time it is retained in these. We have seen anæsthesia caused by only three deep and slow inhalations of capacious lungs; while in the case of surface breathing from compressed or diseased lungs, the process is often prolonged to twenty or more inhalations. And in this connection we may say that in several instances we have found the capacity of the lungs increase with each trial of the gas, with a corresponding shortening of the period preceding anæsthesia.

As a sanitary agent in pulmonary consumption and certain acute diseases, we feel confident that nitrous oxide in its purity has its merits, sufficient at least to claim the investigation of professional skill. May it not have at least a trial by such, and a fair and scientific verdict be rendered? Its extensive use in hygiene and surgery demands this, rather than that it be left in unskilled hands, a butt for professional lampoons.

*Boston, August 17th, 1865.*

ON THE ANTAGONISM OF ATROPIA AND MORPHIA, FOUNDED  
UPON OBSERVATIONS AND EXPERIMENTS MADE AT THE  
U. S. A. HOSPITAL FOR INJURIES AND DIS-  
EASES OF THE NERVOUS SYSTEM.

BY S. WEIR MITCHELL, M.D., WM. W. KEEN, M.D., AND GEO. R. MOREHOUSE, M.D.

DURING our connection with the U. S. A. Hospital for Injuries and Diseases of the Nervous System, we have been obliged to resort to every possible expedient for soothing the pain of those terrible cases of neuralgia, which in some shape are apt to follow as a consequence of neural injuries. Among these means incessant use has been made of hypodermic injections, which alone in many instances seemed able to overcome the anguish of certain forms of neuralgic distress. To what extent we have employed this mode of relief may be gathered from the fact that, at certain periods of our service, the resident surgeons made every day from twenty to thirty subcutaneous injections. In one case half a grain to a grain of morphia was injected thrice a day, and the man finally recovered after having used nearly four hundred injections.

We were naturally led to examine with care into the pretensions of the several agents which have credit for their power to lessen or destroy the sense of pain. The results of this inquiry were of the more value, because they were confined to the use of these agents by injections only, and because they were studied by more than a single observer. Our investigation brought us finally to consider the therapeutic relations of atropia and morphia, to which subject the greater bulk of this paper will be devoted.

The information which our note-books give in regard to the comparative value of remedies used to allay pain, is the result of an almost unexampled experience, and we shall not hesitate briefly to relate it before passing on to our main topic.

After repeated trials of conia, atropia and daturia, with the intention of relieving pain by their subdermal use, we ceased to resort to them. On the other hand, the employment of morphia, or of some preparation of opium for subcutaneous use, became a part of the every-day routine of practice.

Like others, we have met with certain inconveniences attendant upon this mode of employing morphia. In rare cases it always caused distressing sick stomach, but as the pain for which we used it was oftentimes agonizing, the patient usually preferred to endure the sick stomach rather than fail of the delightful relief he obtained from the injection. In these instances it was commonly observed that the morphia ceased after a time to produce either nausea or emesis.

The local annoyances resulting from injections so long continued and so numerous, were sometimes very embarrassing, for though in some men they could be used in the same limb week after week, in others the numerous punctures produced a very unpleasant increase of sensitiveness in the part. Such an instance may be found on page 151, Case 31, of our treatise on wounds and other injuries of nerves. In other persons the injections gave rise to occasional abscesses, and in a soldier who was at one and the same time the subject of a very painful wound of the arm, and of a cold abscess on the back, every injection gave rise to a large indolent abscess. One instance of erysipelas following the use of an injection was seen by us. (*Op. cit.*, p. 150.)

As the opinion of many good observers is quite decided as to the fact that the injection gives the same relief, whether made near to or remote from the seat of pain, we may with reason be asked, why we used so many injections in the same limb or neighborhood. The answer lies in the fact that our patients very early, and we ourselves later and more reluctantly, reached the conclusion that the point at which the injection was to be employed was not a matter of indifference. In the milder instances of neuralgia a subdermal injection of morphia used anywhere in the body did give relief, but in cases of "burning neuralgia," such as we have described in our book on nerve wounds, p. 100, *et seq.*, the nearer we could bring the agent to the place where the pain was felt, the greater was the ease obtained. We are the more anxious to insist upon this matter, because we neglected to make the same comment when detailing our mode of treating these lesions in the volume above mentioned. The belief thus reached is certainly not altogether unphysiological, as we very well know that morphia is capable of causing a local paralysis of sensory nerves, with which it may come in contact. \* \* \* \*



If we be correct in the views expressed in the foregoing pages, certain practical lessons of some value may be learned from them.

If atropia lessens or destroys the unpleasant influence of morphia on the cerebrum, but does not alter its power to allay pain, there seems no reason why we should not use them together so as to obtain all that is best from the morphia with the least amount of after discomfort.

We have certainly had good results from such a use of both drugs, in the form of suppositories, in cases of disease of the bladder or generative organs.

Again, it is sometimes desirable to use either drug in very full doses. This we may do quite fearlessly when assured of our ability to restrain its action by a full exhibition of its opponent.

The foregoing experiments and observations authorize us, we think, to draw the following conclusions as to the use of hypodermic injections, and as to the antagonism of atropia and morphia:—

1. Conia, atropia and daturia have no power to lessen pain when used subdermally.

2. Morphia thus used is of the utmost value to relieve pain, and is most potent, in certain forms of neuralgia, the nearer it is applied to the seat of the suffering.

3. Morphia lowers the pulse slightly or not at all; atropia usually lowers the pulse a few beats within ten minutes, and then raises it twenty or fifty beats within an hour. The pulse finally falls about the tenth hour below the normal number, and regains its healthy rate within twenty-four hours.

4. Morphia has no power to prevent atropia from thus influencing the pulse, so that, as regards the circulation, they do not counteract one another.

5. During the change of the pulse under atropia, the number of respirations is hardly altered at all.

6. As regards the eye, the two agents in question are mutually antagonistic, but atropia continues to act for a much longer time than morphia.

7. The cerebral symptoms caused by either drug are, to a great extent, capable of being overcome by the other, but owing to the different rates at which they move to affect the system, it is not easy to obtain a perfect balance of effects, and this is made the more difficult from the fact already mentioned, that atropia has the greater duration of toxic activity.

8. The dry mouth of atropia is not made less by the coincident or precedent use of morphia. Atropia does not constipate, and may even relax the bowels; morphia has a reverse tendency.

9. The nausea of morphia is not antagonized or prevented by atropia.

10. Both agents cause dysuria in certain cases, nor is the dysuria occasioned by the one agent relieved by the other.

11. Atropia has no ability to alter or lessen the energy with which morphia acts to diminish sensibility or relieve the pain of neuralgic disease.

12. As regards toxic effects upon the cerebral organs, the two agents are mutually antidotal, but this antagonism does not prevail throughout the whole range of their influence, so that, in some respects, they do not counteract one another, while as concerns one organ, the bladder, both seem to affect it in a similar way.—*American Journal of the Medical Sciences.*

ON THE DYSMENORRHOEA, METRORRHAGIA, OVARITIS, AND STERILITY ASSOCIATED WITH A PECULIAR FORM OF THE CERVIX UTERI, AND THE TREATMENT BY DIVISION.

BY ROBERT BARNES, M.D.

THE author described and figured the form of cervix uteri which projected into the vagina as a conical body, the vagina appearing to be reflected off at a point nearer the os internum than normal. The os externum was usually minute, scarcely admitting the uterine sound. This (the os externum) was the real seat of constriction. The os internum normally was a narrow opening; and in these cases of dysmenorrhœa and sterility it was commonly found to be of normal calibre. It was, therefore, unnecessary to divide it. It was, moreover, dangerous to divide it, on account of the close proximity of the large vessels and plexuses running into the uterus on a level with it. The author maintained that this form of cervix was a cause also of retro- and peri-uterine hæmatocele, and of peritonitis. All these consequences might arise in single women. In the married state the evils enumerated were aggravated, and new ones arose. Women with this peculiarity were generally sterile; and if they became pregnant it was early in life, before the further consequences were developed. These were flexions, deviations, inflammation of the cervix and body, hypertrophy. Discussing the question of treatment, the author showed that dilatation was unsatisfactory; that incision of the os internum, as practised by Dr. Simpson's single bistourie caché, and by Dr. Greenhalgh's double bistourie caché, was unsafe and superfluous. He objected to the latter instrument, especially, that it must cut as it was set—that it was too much of an automatic machine, not leaving scope for the judgment of the operator. His (Dr. Barnes's) own instrument, constructed like a pair of scissors, acted on the same principle as Dr. Sims's; it divided only the os externum, so as to open the cavity of the cervix; the part to be cut being first seized between the two blades, the operation was perfectly free from risk; the hæmorrhage was usually slight, and a good os was made. He had performed the operation

many times, both in hospital and private practice, and was well satisfied with the results. One advantage of incision over dilatation was, that it relieved the engorgement and inflammation.

In illustration of the behavior of the conical cervix uteri under labor, two cases were narrated. In one, the cervix and os uteri had returned to their original state, although a foetus of four-and-a-half or five months' development had been expelled through them. In the other case it was necessary to open the cervix artificially by means of the author's cervical dilator and incisions in order to deliver a full-grown child. In both cases pelvic cellulitis followed labor.

Mr. Baker Brown thanked Dr. Barnes for having brought the subject forward. He agreed with most of what had been stated in the paper; was opposed to dilatation as being inefficient and temporary. He described his mode of operating, which was to place the patient in the lithotomy position, and having introduced a bent speculum, he seized the os with a pair of forceps, and divided it with Simpson's hysterotome. He never divided the internal os; always used a plug of oiled lint to prevent hæmorrhage. He regretted that the operation had lately been condemned by a high authority, but believed it was the only efficient and permanent remedy for these painful affections.

Dr. Greenhalgh was surprised to hear the President's opinion that the seat of stricture in these cases was mostly at the external os. He (Dr. Greenhalgh), on the contrary, expressed his conviction that in the great majority of cases the stricture is situate at the internal os, and consequently he recommended division of the internal as well as the external os. After division he usually introduced one of his bilateral expanding stems, which keeps up steady dilatation and prevents contraction. As regarded hæmorrhage, which some appeared so to dread, he had never but once met with it, though he had operated in nearly one hundred cases. He always used his own bilateral instrument, which cuts both sides at once. The advantages of his plan of operating were, he believed, extreme exactitude, facility, painlessness, and the avoidance of any personal exposure. He expressed his surprise at the remark of Mr. Brown that he never divided the internal os, when he (Dr. Greenhalgh) had seen him on several occasions freely incise the internal os in the cases under consideration.

Mr. Baker Brown, in answer to Dr. Greenhalgh, said that that gentleman must be mistaken in what he had seen at the London Surgical Home. He repeated that he never in cases of dysmenorrhœa cut through the internal os. Dr. Greenhalgh was evidently confounding this operation with that for fibrous tumor, retroversion, retroflexion, &c., of the uterus, in which he (Mr. Brown) incised freely, and generally through the internal os.

Dr. Routh fully confirmed Dr. Greenhalgh's view. For his own part he believed in by far the majority of cases the obstruction was

at the *inner* and not the *outer* os; although he did not deny that in some cases of conoid cervix it was present at the external os. He agreed with Dr. Gream in believing that Dr. Sims's plan of operation would occasionally leave a deformed cervix for life; and he did not think it was necessary to cut through the entire cervix. The instrument Dr. Greenhalgh had invented obviated all danger from hæmorrhage. The same was true of his (Dr. Routh's) instrument, which he, however, preferred, because on the bend, and therefore more easy of application in *flexion* cases. A little bleeding was salutary. In most of these cases there was a complication of congestion, which the very incision, by the subsequent hæmorrhage, relieved. But there was no doubt that such incisions, however freely made, had a tendency to contract again. Hence it was necessary to keep the cut made patent by some internal uterine pessary, and for some time, it might be for months, so as to allow it to become properly lined with mucous membrane and incontractible. He knew several persons now walking about London with these. In other cases their removal had been followed by conjugal relations and pregnancy, though previously sterile for years. Of the use of spongetents and other modes of artificial dilatation, in these cases, he spoke disparagingly. He had seen cellular abscess and death follow their use. They should be used with the greatest caution. He also believed cases of dysmenorrhœa were more common than was generally supposed. Not only was the seat of obstruction more frequently at the *internal* os than the *external*, but, indeed, in many cases, the external os was patent and abnormally so, as shown by Dr. Henry Bennet. And there were many, and by far more numerous, cases of dysmenorrhœa which were in no way due to stricture at either os. As these cases were not, however, referred to by Dr. Barnes, he did not allude to them further. \* \* \*

Dr. Graily Hewitt thought that the two questions of the treatment of dysmenorrhœa and of sterility by means of incisions of the cervix uteri had been too much mixed up together. He would say a few words first respecting dysmenorrhœa. He believed that in bad cases of dysmenorrhœa the condition present was frequently retention of the fluid in the uterus, and that this retention caused the pain; and he had been at some trouble to prove this. But, on the other hand, he also thought that the condition was capable of being relieved, in most cases, without resort to mechanical treatment of the cervix uteri. The great thing was to diminish the flow of blood, and this could be regulated by general measures; but that there were a few cases in which such general measures were useless he admitted. He differed from the President in reference to the most common seat of the constriction; for although there were cases in which the os uteri was congenitally extremely small and narrow, yet in the larger number of cases of dysmenorrhœa the impediment was situated at the junction of the cervix with the body of the uterus. With

regard to the best method of applying mechanical relief when such was required, he thought that cases must be treated on their own merits. Where the cervix was hard and dense, the cutting operation was most indicated, the difficulty being here the greatest; but under other circumstances he preferred the use of tents as dilators. The sea-tangle tent was, he considered, a perfectly safe means of dilating the cervix uteri; but, he would repeat, the cases were few requiring this treatment. As to the mode of incising the cervix or os uteri, here again the operation must be selected according to the case: no one operation would be suited to all circumstances. He would next say a few words on the subject of sterility. It was undoubted that in certain cases the cure of sterility could be effected by dilating the cervix uteri, and much had been said as to the superiority of one mode of dilatation over another. The fact was, that so long as the canal of the cervix was a little enlarged, whether by incision or by dilatation, the necessary end would be served. The great object was to secure a tolerable patency of the canal at about the menstrual period, when conception was most likely to occur. Supposing the sterility to be cured, the dysmenorrhœa which might be associated with it would be also, in all probability, permanently relieved.

Dr. Marion Sims was surprised at the great difference of opinion expressed by previous speakers as to the seat of the obstruction, but he agreed with those who thought it was at the lower orifice. He then went into some statistical details of his own practice, and laid great stress upon the frequency of curvature of the cervix as a cause of obstruction at the internal os. Though it might, he thought, lead to an actual narrowing of the canal, yet he believed this was an extremely rare occurrence. But in cases of induration and conoidity the os tincæ was abnormally contracted in every case he had seen. Indeed, a conical indurated cervix was incompatible with a normal os tincæ, the existence of the one almost necessarily implying that of the other. With regard to cases referred to by Dr. Gream and Mr. S. Wells, in which the tissue of the cervix had been too largely incised, so that the lips of the os were everted and rolled backwards, he had never seen any such result after his method of operating, but had witnessed it after the metrotome caché; and he attributed it to this—because it cut deeper into the sides of the supra-vaginal portion of the cervix, and so divided the circular muscular fibres, which are naturally antagonistic to the longitudinal fibres. By his (Dr. Sims's) plan of operating, the incisions upward were more superficial, though the opening of the os was about the same in both methods.

The President, in closing the discussion, said that he only directed attention to one class of cases of dysmenorrhœa—that, namely, associated with the peculiar projecting form of cervix uteri, and usually attended by sterility. This was the form that required treatment by incision. The obstruction that required division was the

os externum or vaginal portion. The os internum normally was a narrow canal. Dr. Greenhalgh passed his instrument through it as preliminary to his operation. If it admitted this instrument, the os was of full normal size, and could not require cutting. His (the President's) instrument and operation were perfectly safe and efficient. He thought, after hearing Dr. Sims's remarks, that he had underrated the importance and frequency of flexion at the neck as a cause of obstruction.—*Proceedings of the Obstetrical Society of London, in London Lancet.*

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## THE BOSTON MEDICAL AND SURGICAL JOURNAL.

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BOSTON: THURSDAY, SEPTEMBER 7, 1865.

MEDICAL COMMUNICATIONS OF CONNECTICUT STATE MEDICAL SOCIETY FOR 1865.—We always read the annual publications of our various State medical societies with interest, and are glad to note from year to year the higher attainment in medical science which they usually indicate. Doubtless there is much room for progress and improvement still; but it is sufficiently obvious that the annual meetings of these associations are becoming more and more what they should be, annual landmarks of the progress which medical science has made within their geographical limits.

The opening address in the pamphlet before us, by the President, Dr. Ebenezer K. Hunt, of Hartford, is mainly devoted to a history of the agency of the Society in originating and carrying out to successful fulfilment numerous projects for the physical welfare of the citizens, which have been of great practical importance. It thus appears that to the active benevolence of this Society the State of Connecticut owes the existence of the State Hospital at New Haven, and the State Lunatic Asylum. These projects originated with the State Medical Society, and were pushed through to successful completion, not only by the persistent labors of its Fellows, but by a liberal expenditure of money on their part—a test of the benevolent spirit which actuated them hardly to have been expected of a profession generally gifted so much more with good will to their fellowmen than the pecuniary means of manifesting it. It is no fault of the Society that other benevolent designs of equal public importance have not as yet been fully realized. Such is the proposal for an asylum for the reformation of inebriates, which was agitated so long ago as 1829, and strongly advocated by some of the leading members of the Society, under its sanction and authority. At the present day no one can doubt the wisdom of such an enterprise, and the successful working of institutions for the same end in other States must before long bring public opinion in Connecticut up to the point so long since reached by the medical profession there. The Society has also made most earnest efforts, as yet unsuccessful, to induce the legislature to make express provision for insane convicts, who are always to be found in considerable numbers in the State penitentiaries. The details of the

action of the Society at various times with reference to these benevolent projects, make up a large part of the President's address ; and it certainly is a most honorable record, showing that the medical profession in our sister State has taken the lead there in the principal moral and philanthropic movements for the benefit of the whole community.

As might be expected, the Society has been active in advancing the cause of medical education within its sphere of action, and has an intimate connection with the Medical Institution of Yale College, one half of the board of examiners for medical degrees in that institution being members of the Society, appointed by the Medical Convention. So that the picture which the President draws in his concluding paragraphs of "the appropriate work of each and every member of the Society" may be said to be a fair representation of their action in times past.

"The founding of hospitals and providing them with all the means and appliances required for their satisfactory operation, and taking the entire professional charge of them—superintending our schools for the acquisition of professional knowledge, and pressing forward as fast as circumstances admit, the requisitions for practice, or looking after these receptacles of human woe, as well as of human depravity, to be found in our alms-houses, jails, and penitentiaries ; to improve, so far it may properly be done, their methods of management, and to be at all times prepared to offer for their adoption the best results of hygiene ; and, finally, to improve our every opportunity for personal and associate advancement in our chosen calling, by means of which we can best fulfil our great mission to man ; these constitute, in general, and at all times, the appropriate work of each and every member of this Society."

The second article in the Transactions before us is the annual dissertation, read before the Convention May 25th, of the current year, by Dr. John E. Blake, of Middletown, on the "Mothers of New England." It is an earnest, forcible appeal to his hearers to use their influence to check, as far as possible, the ruinous tendency of modern systems of education, errors of diet and social luxury, and especially of the criminal practice of what he calls semi-legalized infanticide, which are rapidly breaking down the standard of female health amongst us, entirely unfitting large numbers of women for the important functions and duties of maternity. These topics are not unfamiliar to the readers of this JOURNAL, and we are glad to find they are so justly appreciated by our professional brethren in Connecticut. We hope they may be stimulated by Dr. Blake's dissertation to new efforts to do something to stay this wide-sweeping flood of ruin, so appalling in its prospect to every well-wisher of his country.

The next article is a sensible essay on the Prevention of Phthisis, by Dr. George W. Burke, of Middletown. It does not present much novelty of theory or practice, but is wise, judicious and practical. The author has a higher opinion of the curative efficacy of the hypophosphites, we think, than most physicians who have employed them in this disease.

Other papers of interest treat of Specifics, Strangulated Hernia, the Wet Sheet Pack in Scarlatina, and Diphtheria as it prevailed in Madi-



son, Ct., in 1864, but we are compelled to pass them by with this cursory notice. The usual biographical notices and the records of business of the Society, &c., conclude the volume of Transactions. As a whole, it shows a creditable state of activity in the Connecticut Medical Society, which we hope will lead to still greater results.

**ANEURISM OF THE SCIATIC ARTERY CREATED BY INJECTIONS OF PERCHLORURE DE FER.**—M. Nélaton treated some time since an aneurism of the terminal portion of the sciatic artery, projecting from the buttock, by injections of the *perchlorure de fer*. The case was the more interesting as the patient had formerly had an aneurism in the same region, for which the artery had been tied above the tumor. After a single injection the pulsation had entirely disappeared, the tumor gradually diminished, no inflammation followed, and at the end of a month the patient was perfectly well.—*Gazette Médicale*, Montreal, from *Gaz. des Hôpitaux*.

**TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION.**—The following volumes are for sale, and can be had either of the Treasurer Dr. Caspar Wister, No. 1303 Arch St., Philadelphia, or Dr. William B. Atkinson, Permanent Secretary, No. 215 Spruce St. It is thought that many members of the Association will be disposed to purchase these volumes on learning the terms on which they can be procured. Proceedings of the Meeting of Organization, 50 cents. (Vols. I., II., III., IV. and VI. are out of print.) Vols. V., VII., VIII. and IX., if taken collectively, \$5 for the set. If singly, \$2 apiece. Vols. X., XI., XII., XIII. and XIV., at \$2 apiece. Vol. XV., at \$3. Vol. XVI. in press. If the volumes are transmitted by mail, thirty-two cents in postage stamps should be forwarded to Treasurer or Secretary.

**M. NÉLATON'S FEE FROM THE CZAREWITCH.**—It is known that M. Nélaton received 400,000 francs for his professional visit to the late Czarewitch. It is not so well known, we believe, that this fee was asked, not, as has been stated, because the famous surgeon was too rich and too old to make the journey, and that he therefore set a prohibitory tariff, but because M. Nélaton avoids all utterly hopeless cases, as this was known to be, and thus does not endanger his just reputation for saving his patients, where there is a gleam of hope. The fee demanded by the French Surgeon whom Queen Amalie recommended to King Leopold, without successful result, amounted, it is said, to 150,000 francs. The English surgeon who operated successfully on the royal patient (Mr. Henry Thompson) left the honorarium to his Majesty's good will and pleasure, and received £4,000 and an order of Belgian chivalry.—*London Athenæum*.

**AN ARMY MEDICAL BOARD** will meet in New York city on the 20th inst., for the examination of candidates for admission into the Medical Staff of the United States Army, and of assistant surgeons for promotion. Applicants must be between 21 and 36 years of age, and physically sound. Applications must be addressed to the Surgeon-General of the Army, stating the residence of the applicant, and the date and place of his birth; this must be accompanied by respectable

testimonials of moral character. If the applicant has been in the service, he will send the testimonial of the chief medical officer under whom he has served, and if in service at the present time, the application must be sent through the Medical Director of the respective Department. No allowance is made for the expenses of persons undergoing the examination, as it is an indispensable pre-requisite to appointment. There are now twelve vacancies in the Medical Staff.—*Medical and Surgical Reporter.*

PRODUCTION OF PETROLEUM IN THE UNITED STATES IN THE YEAR 1864.

	Gallons.
Exported . . . . .	33,467,424
Refined in Pennsylvania for domestic consumption	13,349,974
Refined in other States for domestic consumption	8,665,215
Total . . . . .	55,482,613

To arrive, however, at a correct conclusion respecting the production of petroleum, we should remember that of the above amount probably 46,000,000 gallons was refined oil, and would equal, therefore, 60,000,000 of crude oil. Besides this, there is always great loss by evaporation, flood, fire, and many other causes. The destruction of 10,000 barrels in the beginning of March, 1864, in one lot, is known. Then, again, there is a very considerable quantity used for lubricating purposes. Hence it is evident that the actual production of petroleum during 1864 must have largely exceeded the total given above.—*Hunt's Merchants' Magazine.*

DR. J. THEODORE HEARD, Surgeon U. S. V., of this city, has been promoted to the rank of Lt.-Colonel by brevet for meritorious services. Dr. Heard was one of the first of our young surgeons to offer his services to the country at the beginning of the war.

VITAL STATISTICS OF BOSTON.

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 2d, 1865.

DEATHS.

	Males.	Females.	Total.
Deaths during the week . . . . .	51	44	95
Ave. mortality of corresponding weeks for ten years, 1853—1863,	52.0	51.0	103.0
Average corrected to increased population . . . . .	00	00	112.48
Death of persons above 90 . . . . .	0	0	

COMMUNICATIONS RECEIVED.—Laughing Gas and the Extirpation of a Cancer.—Singular case of Monstrosity.

DIED,—At New Castle, Del., on the 12th ult., James Conper, M.D.

DEATHS IN BOSTON for the week ending Saturday noon, September 2d, 95. Males, 51—Females 44. Abscess, 1—accident, 1—anemia, 1—congestion of the brain, 2—disease of the brain, 4—bronchitis, 1—cholera infantum, 22—consumption, 13—croup, 1—debility, 1—diarrhoea, 8—dysentery, 5—erysipelas, 1—scarlet fever, 1—typhoid fever, 1—disease of the heart, 1—infantile disease, 2—intemperance, 1—disease of the kidneys, 1—congestion of the lungs, 1—inflammation of the lungs, 1—marasmus, 8—measles, 1—peritonitis, 2—premature birth, 3—disease of the spine, 1—syphilis, 1—teething, 1—unknown, 3—whooping cough, 5. Under 5 years of age, 61—between 5 and 20 years, 8—between 20 and 40 years, 12—between 40 and 60 years, 5—above 60 years, 9. Born in the United States, 77—Ireland, 14—other places, 4.